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## ABSTRACT

As a testing procedure designed to link instruction and testing in a helping relationship, Monitoring Achievement in Pittsburgh (MAP) is based on four assumptions: (1) classroom teachers are the primary untapped resource in schools and should be called upon for all their professional experience and talents; (2) all testing evidence about student learning, including the monitoring component of MAP, should be recognized as imperfect measures that are no replacement for professional judgement; (3) teacher attempts to focus their instruction and improve their teaching skills must be encouraged and supported; and (4) the principal must be regarded as the instructional leader of her or his school, intimately involved with the curriculum. Beyond these assumptions, MAP consists of five key components: (1) to foster student learning of specific skills, MAP first delineates skill expectations on which instruction is to focus; (2) MAP emphasizes identification of a manageable set of skills for classroom instruction; (3) MAP calls for periodic feedback to students and teachers on student skill achievement as a tool for improving instructional focus; finally (4 and 5), MAP encourages administrators to take an active role in identifying and developing instructional strategies and materials, and in providing teacher support services that foster continuous professional growth. (JBM)

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## MONITORING ACHIEVEMENT IN PITTSBURGH (MAP) ASSUMPTIONS AND COMPONENTS

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Throughout the history of formal education in America, written tests have been a source of strong controversy. In every age they have been both praised and scorned, with men and women of good will among both praised and scorned, with men and women of good will among both the proponents and the opponents. In every age, written tests have been charged with fostering superficiality and anxious cramming. At the same time, they have been credited with motivating youngsters and fostering excellence.

In our time the testing controversy has continued. (Wallace & Reidy, 1979). On a national level, the National Consortium on Testing is one product of that controversy; (Wallace & Reidy, 1980a) on a local level, Monitoring Achievement in Pittsburgh (MAP) is another. National Consortium entered the arena to promote public understanding of tests and encourage the development of alternative assessment means; MAP has entered as an alternative testing procedure designed to link instruction and testing in a helping relationship.

MAP is based on four major assumptions and consists of five key components. That classroom teachers represent the primary untapped resource in our schools, that tests of any kind must be used at the imperfect measures of student learning which they are, that teacher attempts to focus their instruction must be encouraged and supported, and that the principal must be recognized as the instructional leader of her or his school - these are basic assumptions.

### Classroom Teachers: Untapped Resource

Over the last twenty years, millions of federal dollars have been spent to develop "teacher-proof" instructional materials. These materials, to a large extent, were designed to insure student learning in spite of the teacher. The developers of such "teacher-proof" materials expected teachers to use their materials blindly as directed, with little thought of interference.

In contrast to this mechanistic view of teachers and teaching, the developers of MAP believe that teachers are most familiar with the opportunities and limitations of the classroom setting. Accordingly, professional teachers must make the critical decisions about what materials to use and how to use them to help the youngsters in their classrooms learn particular skills, concepts, and generalizations. Students will learn because of, not in spite of, the efforts of classroom teachers. Enhancing teachers' professional self-esteem is a necessary step in releasing their professional talents and helping them improve their teaching skills. (Wallace & Reidy, 1980b).

### Multiple Imperfect Measures

To measure learning is to measure an abstraction. Teachers and students cannot directly observe learning; they can only observe evidence that learning has occurred.

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Thus, statements about student learning are essentially statements of inference. For example, to make a statement about a student's learned ability to effectively use transitions between sentences in paragraphs, it is necessary to examine samples of the student's writing or to examine her or his performance on editing exercises which involve the use of transitions. (Wallace & Reidy, 1980c). On the basis of this examination of evidence, one then infers whether or how well the student has learned to effectively use transitions. In judging the accuracy and validity of any inference, it is necessary to examine the quality of the evidence and the appropriateness of that evidence as a basis for the inference. It is a central assumption of MAP that all pieces of evidence used in making inferences about student learning should be recognized as imperfect measures and that no single measure or test is, by itself, adequate and appropriate for such inferences.

The monitoring component of MAP is designed to provide one imperfect source of data for teacher inferences about student skill achievement. Data generated from the MAP tests and rating sheets should be considered indicative, not definitive. Teachers, as instructional decision makers, should be encouraged to use this data along with other measures such as daily classwork, homework, projects, and reports to gauge progress and plan instruction. When teachers use multiple imperfect measures as the basis of their learning inferences, they increase the likelihood that those inferences will be accurate. Furthermore, when teachers themselves choose which measures yield the most appropriate data for their inferences, they increase the likelihood that those inferences will be valid.

In the everyday world of the classroom, the results of MAP tests will either confirm or challenge inferences already made by teachers, ideally made on the basis of multiple data sources. When such data does not support other information, teachers would take a closer look. They should not assume the formal test data is the best inference base, nor should they reject those data without thought. The important point is that teachers make inferences about student skill achievement. They must not allow any single measure to become anything other than one basis for their inferences. They must not allow any measure to serve as a replacement for their professional judgement.

### Teacher Support Activities

Teacher efforts to focus their instruction on a manageable set of skill expectations and to continually strive for improvement in their teaching must be supported through the provision of resource materials and staff development activities. By itself, the provision of instructional resource materials is not sufficient. Teachers must feel confident not only to use such materials, but also to work beyond them, adapting and enriching them to suit their own teaching styles. If such adaptations are to occur, there must be a conducive environment in which teachers can experiment and learn. Staff development activities should foster such an environment in providing opportunities for teachers to work together to improve their teaching skills and to identify and select appropriate instructional materials.

### The Principal as the Instructional Leader

It has been shown that effective school environments, places where students learn, have at least one common element - a principal who is a strong educational leader. (Edmonds & Fredrickson 1978, Venezky and Winfield, 1980). Schools seem to be successful only when the principal of that school actively supports and encourages learning in the classroom. The leader must be involved not merely in the of her or his school.

MAP seeks, therefore, to reinforce the principal's interaction with the curriculum. The principals must be involved in every stage of the program so that education is recognized as a cooperative effort, not an accomplishment which can either be decreed or ignored.

Pittsburgh Public Schools are fortunate in that we have not only principals to support learning activities, but also a group of Instructional Specialists. These supervisors also must be directly involved in the planning, training, and implementation of MAP. It is they who provide the first line of support for instruction, and it is they, along with the principals, who influence and encourage successful instruction.

### Skill Expectations

MAP exists to foster student learning of specific skills. Thus, the first component of MAP is a delineation of skill expectations on which instruction is to focus. This description of skills is not the same as a list of behavioral objectives, nor, on the other hand, is it equivalent to a general statement of goals. Behavioral objectives tend to overwhelm both teachers and students by needlessly fragmenting the goals of schooling and by focusing instruction on what will be used as evidence of student learning rather than on learning itself. A general statement of goals tends to be so deceptively ambiguous that it provides little guidance for classroom instruction and, thus, little continuity from year to year or from teacher to teacher.

What then are the characteristics of MAP skill statements? A listing of skills for a MAP program in any subject area should, first of all, be a model of effective communication. It should be concrete, free of unnecessary jargon, and easily understandable by students, parents, teachers, administrators, school board members and other interested parties. Experience indicates that illustrative examples are often more meaningful than the skill statements themselves.

Another characteristic of these skill statements is that the number of skills described be manageable from an instructional point of view. In as much as time on the learning task is a major factor in students' success at learning, it is appropriate to limit the number of skills to be learned so that adequate teacher and student time can be given to each skill. Furthermore, successive levels of skill statements should build upon one another to establish a developmental and/or pedagogical sequence of skills. With such a skill sequence, teachers can assign different youngsters to different skill levels based on their achievement rather than on their enrolled grade level. In this way, teachers can communicate appropriately high expectations for each student, another factor believed critical to student success at learning.

In writing skill lists for a MAP program, it must be recognized that skills are learned not as ends in themselves, but as tools for accomplishing further ends. For example, in mathematics one learns to multiply and divide decimal numbers as a tool for solving mathematical problems which require these basic operations. In writing, one learns to vary sentence structure and length as a tool for producing effective written communications. In a similar vein, it must be also recognized that MAP skills in any subject area should not represent the sum total of all that is taught and learned in that subject area. MAP Mathematics Skills illustrate this point in that they represent the system's core mathematics skills, i.e., skills

typical students at any grade level should be able to learn given that fifty to sixty-five percent of total time allotted for mathematics instruction is devoted to teaching those skills. Other mathematical skills, concepts, and generalizations are taught and learned as part of the total mathematics curriculum, even though they are not part of MAP Mathematics.

Finally, MAP skill lists should be written with the genuine involvement of the teaching staff so that those skills reflect the professional experience and expertise of that staff. Respect for the professionalism of classroom teachers, a necessary hallmark of any MAP program, implies that teachers, acting collectively, are the most appropriate individuals to describe MAP skills for the students in their district.

### Focused Instruction

The second component of a MAP program is classroom instruction focused on a manageable set of skills. This component is the basis of MAP in that instruction or teaching which provides adequate time on task does indeed help students learn. All of the other MAP components exist to establish and maintain an instructional focus for teachers and a learning focus for students.

Underlying this component of MAP is the assumption that given sufficient instructional time and appropriate instructional resources, most students can learn what the school teaches. Put another way, good teaching does result in student success at learning. The importance of this assumption cannot be overemphasized. Only if teachers believe that students can learn and the skills described as the first component of MAP, will they be inclined to set high expectations for their teaching, to set high achievement expectations for their students, and to provide focused instruction on those skills. Focused instruction will then lead to increasing the time on task of learning those skills, thereby enhancing the likelihood students will learn those skills. (Edmonds, 1978)

Focused instruction does not imply prescribed instruction. Teachers participating in a MAP program must teach the MAP skills which they collectively described, but how they teach those skills should be a matter of teacher discretion. Teachers are most familiar with the limits and opportunities of the classroom setting; teachers daily interact with their students and, thus, know best how each youngster learns; and teachers are professionals who typically possess wide pedagogical experience and expertise. It follows that teachers should make the decisions about instructional means for students in their classrooms.

On the other hand, focused instruction does imply that substantial teacher and student time should be spent on the task of skill learning. Time is the major school controlled variable which is directly related to successful student learning. As more and more was demanded of schools and teachers, the allocation of instructional time was widely diffused across a wide spectrum of activities. MAP programs provide for redirecting instructional time on a more manageable set of skill expectations in more concentrated doses. As concentrated instructional efforts lead to student success at learning, focused instruction becomes more attractive.

Again, it is emphasized that MAP skills should not represent the sum total of all that is taught and learned in any given subject area. The quantitative and



communicative skills found in MAP Mathematics, Writing and Reading programs are skills which are generative, i.e., which serve as tools for learning the content of many disciplines. Students should learn those skills and refine their skill mastery, not in a vacuum, but in the context of studying various disciplines.

### Focused Monitoring

The monitoring component of MAP provides periodic feedback to students and teachers on student skill achievement. This feedback provides the teacher with one source of data and a formal occasion for making and/or reviewing inferences about student skill achievement on which he or she has focused instructional time. It also provides teachers an opportunity to reflect on the effectiveness of their teaching. Just as importantly, it reinforces the student's learning focus and serves as a stimulus for intrinsic motivation.

In MAP, monitoring tests and rating procedures are used as periodic opportunities for reviewing the appropriateness of the instructional activities being used to encourage each student's learning. Such monitoring procedures are used to nurture, not destroy; to encourage growth, not to discourage it.

The teacher needs multiple pieces of information to plan activities that will encourage further growth and, if necessary, to remove obstacles to growth. The MAP tests and rating sheets provide one piece of information for the teacher's learning inferences. However, the burden of inference rests with the teacher. He or she uses the MAP data along with other information, and resolves any inconsistencies among the various pieces of information in making inferences about what students have learned. He or she then uses those inferences in planning further instruction.

The MAP printouts are delivered to each teacher by the principal, supervisor, or department chairperson. This contact between those involved in the educational process is necessary to support that cooperation so important to successful instruction. Thus, the key instructional personnel are aware of the student progress indicated by the MAP reports. It is also necessary that all parties regard the MAP reports in the spirit of their design - as indicative of student achievement, not an absolute evaluation of mastery. The MAP reports alone are not intended as a tool for teacher accountability, but rather as a tool to be used to aid in the teacher accountability, but rather as a tool to be used to aid the teacher's instructional planning. The class reports suggest areas of focus in teaching; they do not, by themselves, evaluate instruction.

MAP tests should not be standardized. Since teachers are the users of the data yielded by these tests, they should be free to administer them in a manner most appropriate for each student in their care. For example a teacher may allow one youngster forty minutes to complete the mathematics test, while allowing most youngsters twenty-five minutes. He or she may read word problems or may individually give the test to a special needs youngster who has a learning disability in mathematics. Since the teacher is using the test data, he or she can take into account the way in which the test was administered when making learning inferences.

MAP tests and other monitoring instruments are designed so as not to yield mastery/non-mastery data. Each test is composed of one item per objective, and the test items are designed by the teachers themselves. Tests which do not provide

such data force teachers and administrators to use other data sources in making their inferences about student skill achievement. Further, tests are used often enough to maintain an instructional focus, yet seldom enough to represent a minimal intrusion in the ongoing instructional program. In this regard, it is also desirable that tests be relatively short so that little time is taken away from instructional activities. Also, when rating sheets are used, they are used with student writing produced as part of the normal classroom routine, not in addition to it.

All tests are scored and all reports generated with a minimal amount of clerical work for teachers. The computer is used as a fast clerk to score tests and produce two types of reports: an individual report for each student and a diagnostic summary for the teacher. All reports are easily interpretable by teachers, students, and parents. Finally, all reports are produced and delivered to teachers no later than seven school days after the testing period.

### Instructional Materials and Staff Development

Although it is the responsibility and the prerogative of classroom teachers, not of central office or school level administrators, to decide on instructional means, it is the responsibility of administrators to serve an active leadership role in helping and supporting teachers' instructional efforts. The instructional materials and staff development components of MAP are mechanisms for providing teacher support services.

Teachers are the critical people in helping students learn; they are the instructional decision makers. (Shavelson, 1976). In addition to involving teachers in delineating skills and in developing monitoring procedures, the district's leaders are also providing opportunities for teachers to identify and develop instructional strategies and materials. By providing frequent occasions for this type of teacher activity, leaders help create an environment conducive to fostering continuous professional growth.

Principals and curriculum staff should also encourage teachers with whom they work to become involved in professional associations so that they can contribute to and benefit from the work and ideas of colleagues.

In a sense, workshops for selecting, developing or revising instructional materials are staff development activities, but they are only one of many staff development efforts. Other such activities, aimed more at helping teachers refine their teaching skills or improve their personal skills in an area such as writing, include regional conferences and workshops, workshops and courses sponsored by individual schools or by the school system and visits to classroom in other school systems.

### Conclusion

Monitoring Achievement in Pittsburgh (MAP) is a dynamic program designed to effectively link instruction and testing in a symbiotic relationship. In MAP, instruction is the vehicle for helping students learn, while testing is the vehicle for monitoring the success of instruction. Significantly, testing in a MAP program does not denigrate teacher inferences about student learning, but rather enhances the the quality of those inferences and their importance as a basis for instructional planning.

Based on respect for the professional experiences and expertise of classroom teachers, on a recognition of both formal and informal tests as imperfect measures of learning, and on an understanding of the importance of providing support to teachers as they focus their instructional activities, MAP provides a structure which encourages and assists teachers in making their instruction more effective and their inferences about student learning more accurate. Once implemented, MAP maintains an instructional focus for teachers and a learning focus for students which, in turn, enhances a student success at learning.



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